We claim:

1. A method for implanting tissue into an animal comprising

mixing a biodegradable, biocompatible hydrogel solution with dissociated cells and

implanting the mixture into the animal.

2. The method of claim 1 wherein the hydrogel solution is hardened prior to implantation in the animal.

3. The method of claim 1 wherein the hydrogel is injected into the animal as a cell suspension, which then hardens.

4. The method of claim 1 wherein the hydrogel is selected from the group consisting of alginate, polyphosphazines, polyethylene oxide-polypropylene glycol block copolymers, poly(acrylic acids), poly(methacrylic acids), copolymers of acrylic acid and methacrylic acid, poly(vinyl acetate), and sulfonated polymers.

5. The method of claim 4 wherein the hydrogel is hardened by exposure to an agent selected from the group consisting of ions, pH changes, and temperature changes.

6. The method of claim 5 wherein the hydrogel is hardened by interaction with ions selected from the group consisting of cations selected from the group consisting of copper, calcium, aluminum, magnesium, strontium, barium, tin, and di-, tri- or tetra-functional organic cations; anions selected from the group consisting of low molecular weight dicarboxylic acids, sulfate ions and carbonate ions.

7. The method of claim 4 wherein the hydrogel is further stabilized by cross-linking with a polyion.

8. The method of claim 1 wherein the cells are selected from the group consisting of chondrocytes and other cells that form cartilage, osteoblasts and other cells that form bone, muscle cells, fibroblasts, and organ cells.

9. The method of claim 1 wherein the hydrogel is molded to form a specific shape prior to implantation.

10. The method of claim 1 wherein the hydrogel is molded to form a specific shape after mixing with the cells and being implanted into the animal.

11. A composition for implanting tissue into an animal comprising

a hydrogel solution mixed with dissociated cells.

12. The composition of claim 11 wherein the hydrogel solution is hardened prior to implantation in the animal.

13. The composition of claim 11 wherein the hydrogel is injected into the animal as a cell suspension, which then hardens.

14. The composition of claim 11 wherein the hydrogel is selected from the group consisting of alginate, polyphosphazines, polyethylene oxide-polypropylene glycol block copolymers, poly(acrylic acids), poly(methacrylic acids), copolymers of acrylic acid and methacrylic acid, poly(vinyl acetate), and sulfonated polymers.

15. The composition of claim 14 wherein the hydrogel is hardened by exposure to an agent selected from the group consisting of ions, pH changes, and temperature changes.

16. The composition of claim 15 wherein the hydrogel is hardened by interaction with ions selected from the group consisting of cations selected from the group consisting of copper, calcium, aluminum, magnesium, strontium, barium,

~~tin, and di-, tri- or tetra-functional organic~~ cations; anions selected from the group consisting of low molecular weight dicarboxylic acids, sulfate ions and carbonate ions.

17. The composition of claim 14 wherein the hydrogel is further stabilized by cross-linking with a polyion.

18. The composition of claim 11 wherein the cells are selected from the group consisting of chondrocytes and other cells that form cartilage, osteoblasts and other cells that form bone, muscle ~~cells~~, fibroblasts, and organ cells.